



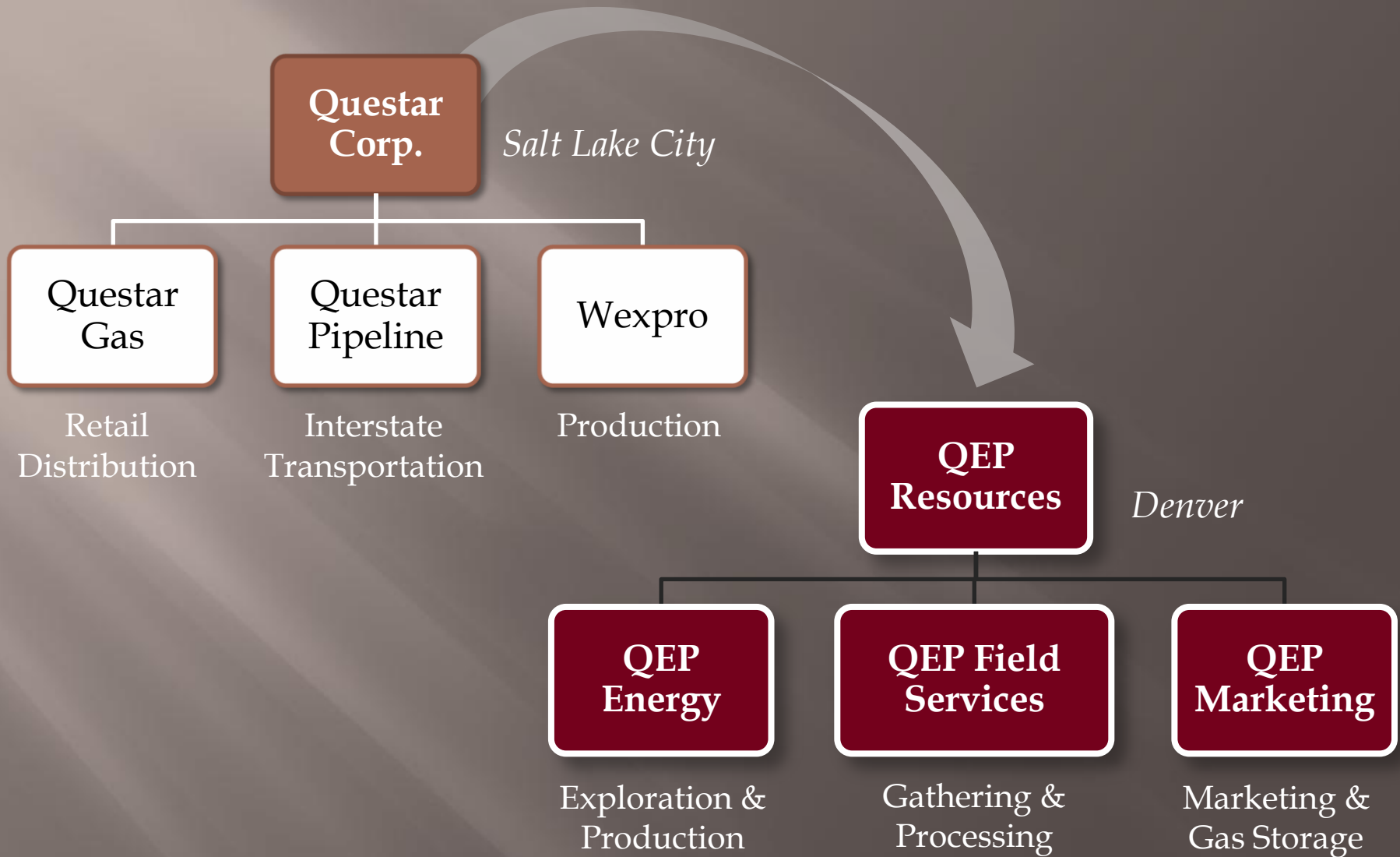
QEP Energy Company

Enhanced Reclamation Program

Presented By:
Stephanie Tomkinson
Senior Biologist
July 12, 2010

Utah Energy Forum “Environmental Management in Oil and Gas Operations”

Who is Questar/QEP?



Enhanced Reclamation



Comprehensive Approach
Temporary Footprint

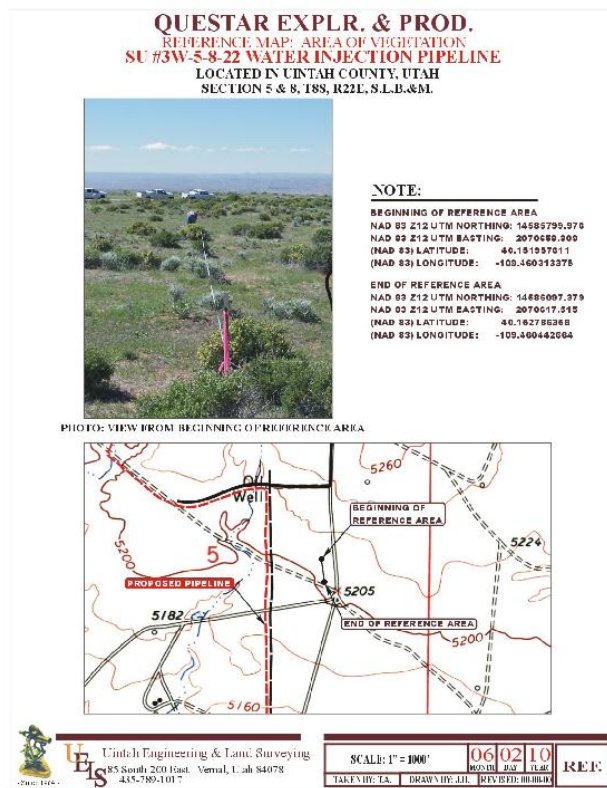
Enhanced Reclamation Program



- Reclamation Plan
 - Pre-disturbance Planning
 - Recontour
 - Reclaim
 - Monitor
 - Remediate (when necessary)

Enhanced Reclamation Program

Pre-disturbance Planning



- Reclamation Plan
 - Internal Goals
- Reference Sites

Reclamation Process



- Empty and backfill reserve pit

Reclamation Process



- Rip to relieve compaction

Reclamation Process



- Recontour

Reclamation Process

- Spread topsoil



Reclamation Process

- Establish drainage



RW 14-20B

Plugged and Abandoned June 2008

Reclaimed Fall 2008



RW 14-20B

July 6, 2010 2nd Growing Season

Creative Dirt Work and Landscaping

Carefully and strategically placed shot rock and juniper litter.



**RW 34-27ADR , Red Wash
Field, Uintah County, Utah**



**FR 9P, Flat Rock Field, Uintah
County, Utah**

SCT 6G-12-7-22

Red Wash Field

Uintah County, Utah

P&A Location - Reclaimed 6/2008

Photographed 6/2009 - 1 Growing Season



Snow Fence



Sparks Ridge 1: February 12, 2008

1st winter after fall planting and installing snow fence

Hiawatha, Colorado

Snow Fence



Sparks Ridge 1: July 8, 2008

1st growing season - effects of snow fence

Hiawatha, Colorado



Sparks Ridge 1: June 23, 2009

2nd growing season - effects of snow fence

Hiawatha, Colorado

Soil Amendment: Gypsum

Disced into top 3" of soil.



Straw Mulch

Straw mulch being applied with hay-buster.





Nutrients * Moisture Retention * Erosion Control * Shade

Matting

Matting on steep slopes to help control erosion.



RWS 10ML-5-9-24, Red Wash Field, Uintah County, Utah

Imprinting

Moisture retention and erosion control.



Imprinting



Reclamation + Functionality



Ditch Perimeter of Production Pad

RW 34-27ADR , Red Wash Field, Uintah County, Utah

Reclamation Enhancements

2007



2010



Shrub Islands

Sparks Ridge Unit 1, Moffat County, Colorado

Enhanced Seed Mix



Rocky Mountain Bee Plant, *Cleome serrulata*

Enhanced Seed Mix



Seed Enhancement

- Seed treatment
- Nutritional Supplement
 - Quicker emergence
 - Stronger, bigger root systems
 - Increased yields

Nutriplant

for
Root Vegetables
Beet, Carrot, Parsnip,
Turnip, Radish, etc.

NUTRIPLANT SD is a seed treatment applied to seed just prior to planting. It is a nutritional supplement to enhance seedling emergence and growth. It is designed to adhere to seed without moisture.

With NUTRIPLANT SD, Farmers Report


- * Quicker emergence
- * Stronger, bigger root systems
- * Increased yields

NUTRIPLANT AG is a foliar nutritional supplement to enhance crop growth. The genetic potential for any crop is never reached due to stress encountered during the growing season. Plants are more vulnerable and use more nutrients at particular stages of development. NUTRIPLANT AG is designed to be applied at these particular stages, leading to better yields and improved quality.

With NUTRIPLANT AG, Farmers Report

- * Increased resistance to stress
- * Better quality
- * Larger roots
- * Increased yields

NUTRIPLANT SD and NUTRIPLANT AG are intended as supplements to a regular fertilizer program and will not by themselves provide all the nutrients normally required by plants.

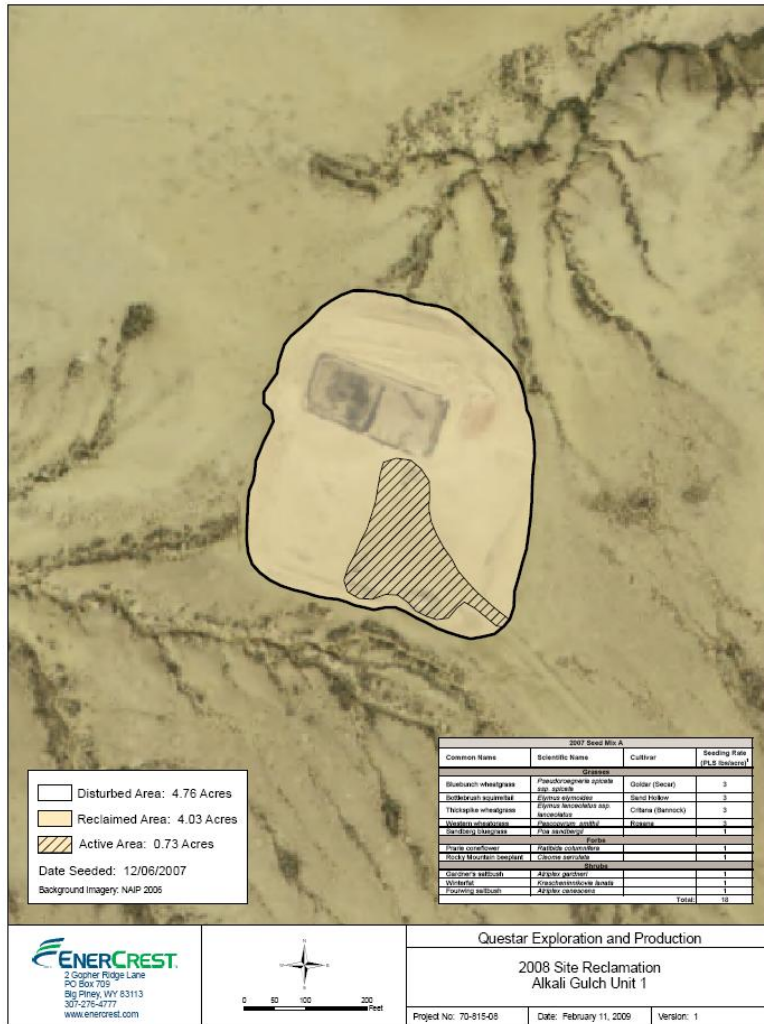


**Use Directions
on Back**

➤ **Easy to apply**
➤ **Cost-effective**

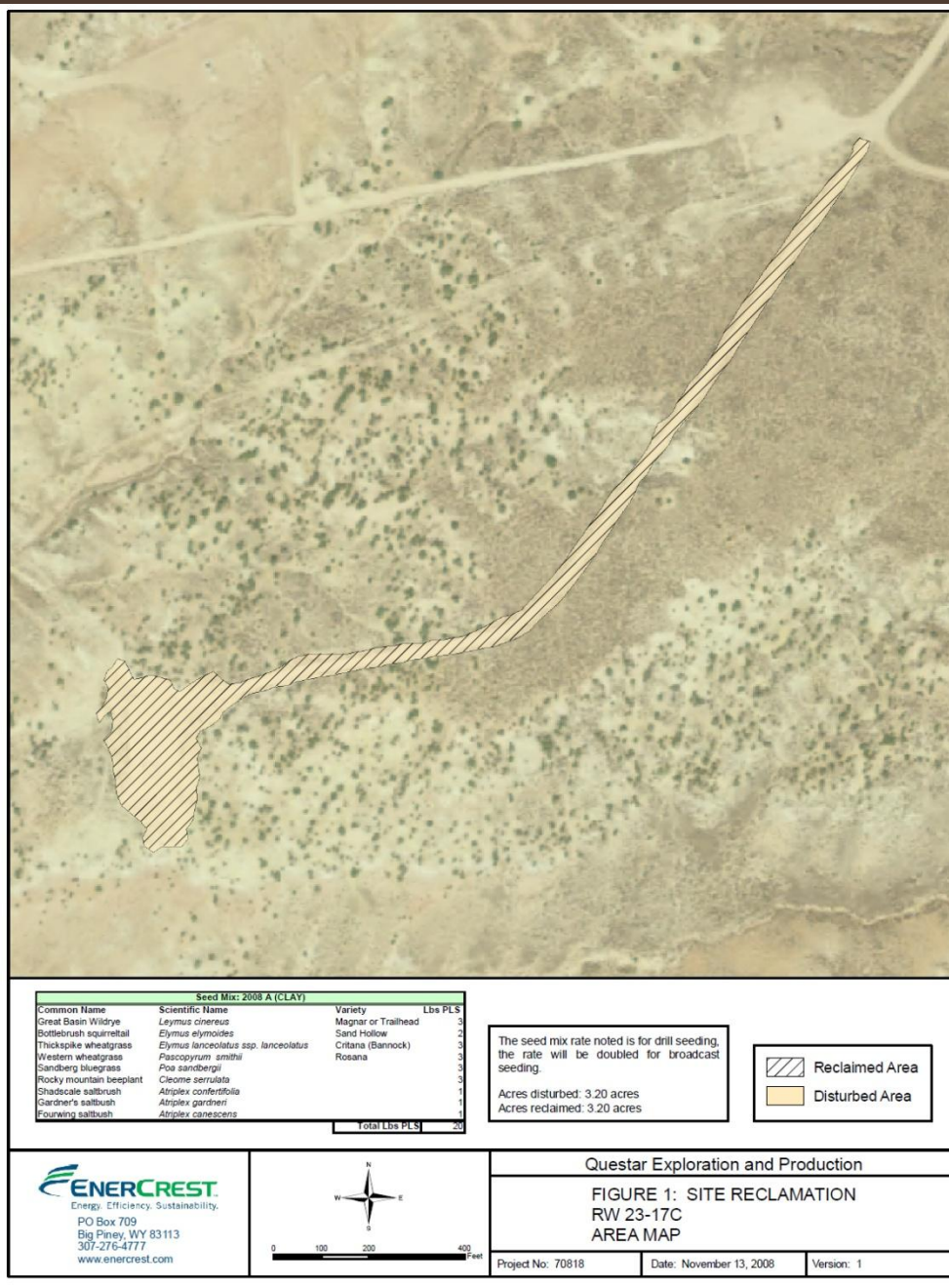
Long Term Tracking: Recording

- Record
 - Disturbed area
 - Reclaimed area
 - Active area
 - Seed mix and rate
 - Dates



Long Term Tracking: Monitoring

- Reclamation Map and Information



Long Term Tracking: Monitoring

- Monitor
 - Site Information
 - Vegetation Assessment
 - On Site and Off Site
 - Other Observations
 - Reclamation Assessment
 - Recommendations

Questar Exploration and
Production Company

QUESTAR

2008 Reclamation Monitoring Report: Dripping Rock 6

Site Information

Date Visited: 7/25/2008
Field: Wamsutter
Status: Interim Reclamation

Total Disturbed Area (ac): 2.46
Active Area (ac): 1
Reclaimed Area (ac): 1.46

Daubenmire Frame Vegetation Assessment

Type	Canopy Cover	
	On Site (%)	Off Site (%)
Grass	2.8	
Forb	0.1	1.1
Shrub	15	7.9
Total	15.1	9
Weed	0.1	
Major Weed Species On Site:		
Halogeton		



Other Observations

Erosion Features: None observed
Erosion Control BMPs: Diversion ditch and surface roughening
Evidence of Grazing: Wildlife
Fencing: None

Reclamation Assessment

Criteria	Current Value	Required Value	Criteria Met
Relative Canopy Cover $= ((\text{On site vegetation cover}) / (\text{Off site vegetation cover})) \times 100$	167.8%	$\geq 70\%$	Yes
Weed Criteria	0.1%	$\leq 10\%$	Yes
Surface Stability Class	Stable	Stable	Yes
Meets Reclamation Criteria			Yes

Recommendations

Site Preparation: No action required.
Weed Control: No weed control recommended.
Seeding: No seeding required.
Erosion Control: No erosion control necessary.
Other: No additional recommendations.

KC HARVEY
Soil & Water Resource Consulting

WRU EIH 6MU-25-8-22, Glen
Bench Field, Uintah County, Utah

WV 11AD-14-8-21, Wonsits Valley
Field, Uintah County, Utah



Ponds

Ponds built while reclaiming locations.



Pronghorn at Water Hole

Awareness and Education



Awareness and Education



USU Sociology Department – Field Tour – March 2010

2010 Earth Day Award Winner

- Recognition
 - Utah Division of Oil, Gas, and Mining
 - Uinta Basin Division
 - Enhanced Reclamation Plan



Questions or Comments

